PRELIMINARY RESEARCH PLAN TOWARDS A PROJECT AND PORTFOLIO MANAGEMENT FRAMEWORK TO SUPPORT INNOVATION-DRIVEN SMES

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ABSTRACT

Despite the different business models and frameworks used currently in the industry, there is still a lack of a robust single roadmap that is dedicated to small and medium-sized enterprises which combines the applicable concepts of portfolio management and innovation management at the same time, and provide SMEs with an integrated feature to assist them in selecting and managing the best mix of innovative projects inside one business portfolio, using the most optimized methods.
This unique integrated framework shall be the ultimate goal of our research work associated with other sub-goals and sub-objectives throughout the two upcoming years. The research will take the form of "applied research" following a deductive logic roadmap in order to reach our final outcome.
More than one aspect regarding our research shall be clarified as we move on with the next stage of the work such as choosing a specific industry from which our sample will be selected.

INTRODUCTION AND MOTIVATION

Small and medium-sized enterprises (SMEs) represent the lion's share for most of the economies around the world (Saublens, 2013); he added that they are the main pillars that hold those economies from falling down, especially in tough economic times, mentioning an example of the European Union (EU) as they make up more than 98% of all businesses in the EU and provide around two thirds of the private sector jobs. Starting from this very true fact, it is considered more than important to give this particular component that the economies rely on, an additional concentration, support, and assistance regarding all levels.
There is no consensus on one standard definition according to Dalitso & Peter (2000) that defines small and medium sized companies. However, the definitions differ from one country to another, from one continent to another, and from one era to another. The European Commission defines medium, small, and micro enterprises as follows: medium companies have fewer than 250 employees and turnover of less than €50 million; small companies have fewer than 50 employees and turnover of less than €10 million; micro companies have fewer than ten employees, and turnover of less than €2 million (Turner et al. 2012). However, it is apparent that there is what seems like a final consensus on the substantial role that small and medium-sized companies hold for their economies. The EU considers small and medium-sized enterprises as a main backbone of its economy, rate of employment, and its social integration. They play a vital role in the economic development of nations; therefore, it is vital to evaluate the performance of small and medium-sized enterprises to support that role (Abouzeedan, 2011).
The growth and strength of this specific portion of companies is crucial for their existence inside the market on one hand, and for the development of the whole industry on the other hand. And when it comes to discussing their development, one cannot avoid talking about a modern sustainable innovation model or framework to ensure the continuity of an efficient productivity for these small and medium-sized companies. Firms need to innovate, at least on occasion, to gain competitive advantage (Vermeulen et al. 2003). The rate at which they innovate has been linked to performance (Soni et al., 1993).
Innovation -as an applicable concept- within small and medium-sized enterprises has been a big challenge over the past years and still is. SMEs mostly act in small markets or only in one area of the market. Thus they have limited number of products (Heinz, n.d.). This is one of many challenges that SMEs face while moving forward on their innovation adventure. Firms, therefore, spend a great deal of time and energy developing the capability to innovate and one of the main ways they innovate is throuhg new product development (Vermeulen et al. 2003). Other challenges come associated with the concept of project management and portfolio management, where these companies are required to select the best project portfolio that aligns with their long term strategy, taking into consideration the resources available for each project and its priority level, according to the prioritization ladder set by the company.
This is what was clearly mentioned in a scientific study published by a Swedish university discussing the issue of

project portfolio selection. It is mentioned that the selection of the right set of projects is considered critical for organizations to successfully achieve their competitive advantages and corporate strategies. Due to limited resources and dynamic changes in business environment, this kind of selection is quite challenging for organizations (Le and Nguyen, 2007).

Not to forget the fact that project management can play a significant role in facilitating the contribution of SMEs in their economies, but SMEs require less bureaucratic forms of project management than those used by larger, traditional organizations (Heinz, n.d.) and thus SMEs should not avoid applying the best they can in the field of project and portfolio management.

Getting a bit deeper into the definition of project portfolio, it is important to state what was published in 2001 regarding this matter: project portfolio management and project portfolio selection is formally defined as a dynamic decision process whereby a business's list of active projects is constantly updated, revised. In this process new projects are evaluated, selected and prioritized; existing projects may be accelerated, killed, or de-prioritized and resources are allocated and reallocated to active projects (Cooper et al., 2001b). Project portfolio selection evidently contributes to success of project portfolio management and more importantly to the achievement of corporate strategy (Le and Nguyen, 2007).

This is a main field that all SMEs should master maneuvering in it, overcoming its barriers, and achieving the best they can out of it. Also, it happens to be one of the most important fields in our era for researchers to study, analyze, discuss, test, and finally draw new adjusted formulas, models, and frameworks in order to help support those SMEs and accordingly the whole economy.

Although the research on innovation tends to focus primarily on large firms, innovation is at least as important for small firms. The strategic position of a small company depends on its ability to offer high-quality products and services that fit the needs of the market. Therefore, a permanent flow of product innovations is significantly important to small firms (Simon et al., 2000).

A big challenge falls here on the researchers working in the field of project portfolio management within SMEs. The challenge comes in monitoring closely our rapidly changing markets in order to come up with relevant frameworks that ensure SMEs can still adapt and take the right decisions on the right project portfolio using the right prioritization ladders in order to achieve the right predefined goals in the right time.

OBJECTIVES

Our forecasted research work aims at establishing a unique customized multilayer-framework designated precisely to fit the best in small and medium-sized companies running in different industries; the main purpose of this customized framework –if well applied– is to trigger through several internal and external channels a continuous emergence of innovative ideas, projects, and initiatives as needed for the company, as well as to guide a radical improvement for their process of selecting, prioritizing, and managing their project portfolios within their businesses.

Based on what is mentioned above, the research question could be formed as follows:

How could the correlation between the applicable concepts of "innovation management" and "project portfolio management" structure a new framework dedicated to support SMEs in selecting and managing the best project portfolios while remaining leaders in innovation?

Moving to the phases of the research work cycle, below are the main phases of the work and some sub-phases as well.

Phase 1: Identifying the problem/issue that will be researched throughout the study

- Translate this issue/matter that will be researched into a clear direct question where the results of the research after all will be an answer of it.
- Design a thesis roadmap (plan) that reveals the high-level phases of the future work.

Phase 2: Conducting a detailed review paper about the topic literature

- This review addresses all the main corners of the chosen-topic literature in order to establish a robust infrastructure, which will serve later on as a main base where the research will be built over it.
- It covers also all the findings of the previous researches done in the same area and accordingly "contribute to knowledge" by modifying, cancelling, or adding to these previous findings.

Phase 3: Selecting the sample

- A quick scan over the companies, which belong to our target section, should be made in order to choose our sample from it.
- The full scan of targeted companies should be kept on side to be revealed as an appendix at the end of the research for its importance.
- Choose the sample, which will be sort of specific chosen small and medium-sized companies from different industries as needed for the purpose of the pure research, or a sort of frameworks being used in several companies.

Phase 4: Collecting data

- Primary data collection (observations, surveys, interviews, case studies, triangulation, etc…)
- Secondary data collection (World Wide Web, books, libraries, etc…)

Phase 5: Analyzing collected data

- Conduct a qualitative and quantitative analysis for the collected data in order to come up with

clear hypotheses regarding current situation within SMEs.
- Investigate the current used frameworks by those companies.
- The main features of the "to-be-designed" framework should start appearing at this phase.

Phase 6: Setting up the proposed framework that will be called "InnoFrame"
- Design the framework as a theory based on the understanding and analyzing of the previous collected data.
- Repetitive iterations in the form of a cycle for the following actions should take place at this stage "collecting data---analyzing data---proposing new framework feature---validating---collecting data---analyzing data---modifying the proposed new feature---validating" and so on.
- Consultations, discussions, and experiments will be seen here.

Phase 7: Validating the framework
- Testing features of the framework, checking usability, monitoring results, and measuring improvements will occur in this phase.
- Tangible results should be seen and interpreted.
- More refining might be needed.

Phase 8: Generalizing
- Can this framework and results be generally applied to this class of companies belonging to different industries?

Phase 9: Reporting the findings / Finalizing the research
- Intensive consultation and close work is taking place with the supervisor.
- Modifications and refining occur as needed.
- A complete documentation of all the research phases should be structured, and submitted as the final "doctoral thesis".

STATE OF THE ART

Project and Portfolio Management (PPM) is the key business process discipline for better managing the innovation process, optimizing time-to-value and the return on investment through aligning the portfolio of innovation initiatives with business strategy and balancing cost, resources and business risk (Ramsay, 2011). Three main aspects were listed previously to emphasize some of the important key success factors for companies from different sizes, especially those targeted in our study, small and medium-sized enterprises.

The relation between both concepts -innovation management and portfolio management- is lightened in the quotes mentioned as well. An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or new organizational method inbusiness practices, workplace organization or external relations (OECD, 2005). It is well established that innovation is a key driver of organizational competitive advantage and SMEs are a crucial part of the national innovation system (Lawlor et al., 2015).

To resketch what is mentioned above; it has been revealed that the enterprises seek a robust frame that tighten the control, management, and selection of its portfolio and correlates it with the internal innovation stream by all means. An importance of the role that is nowadays attributed to the issue of innovation, also in the context of building a competitive advantage, is confirmed by numerous scientific studies, which generally indicate a positive relation between innovativeness and a broadly understood company's performance (Krasnicka and Ingram, 2013). Here is another relation that should be monitored inside the enterprise between innovation and the overall performance of the company; it is also highlighted, as it happens to be in fact one of the upper stairs of the enterprise's success ladder.

This relationship does not fall outside the previous context that relates innovation to portfolio management; however, it comes to fall in the same field since performance is measured in one way or another by the success of the enterprise's projects, which in turn compose the portfolios of the company. Those projects are the main pillars that might drive a rapid growth of SMEs or take it in the failure direction. Thus a big space will be given to construct all the balancing channels that will form the final model, which -tactically- is designed to support the success of all selected projects within the SMEs. We should not doubt the importance of projects in SMEs, yet the management community in general and the project management community in particular do little to provide SMEs with guidance on managing projects (Kelly et al., 2013).

"Over the last 15 years, portfolios have drifted from moderately balanced to a huge imbalance, with far too many small projects and few major or breakthrough initiatives" (Cooper, 2016). It is an essential point mentioned here; it sheds the light on an urgent problem that has been occurring in the recent decade or more in several industries within a major sector of enterprises. This takes us to search about the source of those pitfalls that happen to be many times resulting from the inaccurate analysis, incomplete knowledge, or improper use of the project's selecting tools in order to choose the portfolio. As a result, important investment decisions around innovation opportunities are often based on incomplete or inaccurate information (Ramsay, 2011). This leads the investigation and research works that will occur throughout this study to concentrate on the main aspects and characteristics that form the main control panel of the company to help it move on to select the best portfolio pack while being able to track, measure, and modify it as needed. This involves both selecting which investments to make and managing the complex challenges involved in ensuring that these investments result in concrete enterprise value (IT Governance Institute, 2008).

A major part of the problem lies with portfolio management; how executives make their R&D investment decisions, relying largely on financial approaches, including net present value (NPV), return on investment (ROI), and payback period (Cooper, 2016). These are some of the problems that small and medium-sized enterprises face. Many other associated problems emerge as well, being fatal if not resolved in the right time, and vital for getting reformed according to a balanced framework or model. "A related portfolio cause is the failure to set aside strategic resources to undertake these major initiatives and breakthrough projects. After the portfolio allocation exercise, resources are already over-committed, and thus there are few or no resources available to do the breakthroughs and so they get postponed or put on hold" (Cooper, 2016).

The task of finding new and sustainable sources of growth requires our innovation effort to be more disciplined and productive than ever before (Lawlor et al., 2015). Small and medium-sized enterprises are characterized by several unique characteristics that differentiate it from those big companies. According to Harmon (2007), the main advantages of small and medium-sized businesses include flexibility to respond to market changes.

This fact is to be considered on a large scale when studying, designing or constructing the desired model at the end of the day. Many other aspects related to different sides such as customer satisfaction, customer engagement, enterprise internal processes, and such should also be studied. "Being successful at innovation is not accidental. Rigor in pursuing opportunities that match significant customer need and developing related products or services quickly, at the right price and fit for purpose is essential" (Lawlor et al., 2015). Thus there is an internal and external multi directional relation that would identify the scope of any suggested model, framework, or solution targeted for small and medium-sized enterprises.

Ramsay (2011) has stated that for any company, especially those working in highly competitive markets, it is crucial to have the ability to capture more ideas, scope them effectively, and accurately identify the best new ideas to develop. The engagement that is mentioned previously between the company and the customer should embed a sustainable channel that ensures customers are providing their feedback, contributing with their vision, and compose a main part of the business model, framework, or cycle. This step requires an obvious strategy for the enterprise since it is related to empowering the capabilities of the whole business on the long run. "Building an innovative capability requires a framework with vision and strategy supported by knowledge and competence and the associated organizational structures, managerial systems, processes and mindset" (Lawlor et al., 2015).

The stream that is maintained through the embedded channel that is built between the internal pool of knowledge inside the company and the external sources such as the customers has branches that might affect all the vital areas of the business. The ability to continuously transform knowledge and ideas into new products, services, processes, and systems for the benefit of the firm and its stakeholders or to possess 'innovation capability' is a key requisite for business success (Lawlor et al., 2015). The stream channel highlighted above is in other words a stream of projects to be achieved within a timeline. Accordingly, Le and Nguyen (2007) concluded that selecting right projects and right mix of projects for the portfolio is considered as one of the most important tasks for the organizations to ensure the achievement of the corporate strategy within limited resources and capabilities of the organizations.

The accuracy of using this specific channel and the other multidirectional channels that form a complete model or framework where projects and initiatives are emerging will identify the percentage of success for the enterprise. This success is to be measured and monitored regularly using several methods. All this is done in order to make sure that the enterprise is moving upwards with the planned growth rate. And as Ramsay (2011) said, businesses strive to enable continued growth in sales and market share, whilst maintaining control over costs in order to maximize profits. Increasingly they must have their portfolios of products and services target the needs and priorities of the increasingly knowledgeable customer, and they must be able to adapt to the changing business environment and new market trends.

Innovation portfolio management in SMEs is the field where all the maneuvers should take place. There is a direct proportional relation that if exists would maintain a successful balance formula for the enterprise. Otherwise heavy consequences will appear. "A direct consequence of the silos of innovation landscape is that organizations lack a holistic view of their innovation portfolio" (Ramsay, 2011, p. 5).

From this very clear display, it happens to be essential to explore a new framework associated with relevant tools that could guide small and medium-sized enterprises to move with the innovation trend, not against it, through the best project portfolios, in order to help them achieve better performance in its industry, which in turn will turn into improvement of the whole economy of the country.

DESCRIPTION OF TASKS

The main route of this research has a sort of clear blocks to be finished consecutively according to a timeline, and several major milestones to be achieved as shown in the previous parts of this paper. Each of them comprises several essential tasks that should be done in the appropriate way and the right time in order to be able to move to the next block smoothly carrying the obtained results.

Many of the tasks that will occur sequentially throughout the different phases come in the form of bi-directional or cyclic, in a way that more than one phase, as will be seen,

include tasks that need to enter some kind of iteration before moving to the next task.

It is important before proceeding to the description of the tasks to shed the light on what makes this research a bit different from many others. It is shown so far, and will be more clarified throughout the following sections, that this research tries to come up with a new modified framework targeting a certain specific class of companies belonging to different industries. This framework will not be designed from scratch, however, it will benefit from other frameworks already used in the industry; it will study those used ones, add up to them, modify as needed, analyze where they should be analyzed, change if needed, correlate with new aspects, test the new design, and validate at last. This cyclic model will be repeated till it fulfills all the objectives drawn for this research. Thus, it is neither about solving a specific mathematical problem or qualitative issue, nor about designing a matter from scratch; however, it comes different from those two approaches that most of the researches follow in a way that it will enhance what is already used, correlate it with new aspects, test, and validate before releasing it as a complete business solution to the market.

Moving into the description of the work, the aforementioned phases are revealed below with more explanation on the tasks associated with each.

Phase 1, the very beginning point of the whole study, is the identification of the wide area that the research will take place in as a first step, and then specifying narrow zone that will be addressed and treated successively as a second step.

As was shown before, the main area where this research will take place correlates two important wide zones at the same time, one is "innovation management" and the other is "project portfolio management". These two areas were chosen after a quite critical consultation and discussion with the supervisor of this work.

In addition, the decision was made on targeting SMEs through our experiments and studies since they represent the most critical portion for the success of the economies.

The issue is then converted to a question form in order to reflect a clear starting point for readers and audience.

"How could the correlation between the applicable concepts of "innovation management" and "project portfolio management" structure a new framework dedicated to support SMEs in selecting and managing the best project portfolios while remaining the leaders of innovation?"

The question above is just one part of the first phase, where it includes also a full roadmap -the thesis plan- for the full research work all the way from point zero till the end. This "plan" sheds the light on the main phases and tries to cover the sub phases and tasks that fall under each round of the work, taking into consideration that at this level of the work, many details are not yet clearly apparent, and what is mentioned from sub phases to tasks might undergo modifications as the work moves on.

Phase 2 is a thorough, comprehensive, and in-depth review for the topic's literature. It starts by scanning the related studies, books, articles and such to form a big repository of what is done in this domain.

After that, in-depth reading, monitoring, and a sort of comparison will take place to end up with a big picture, the whole literature covering all its implicit and explicit concepts.

Also a main part of this phase is to reach the last finding, result, or conclusion done in the same area, as it will form later on a main part of the basic infrastructure where this research will be built.

At the end of this phase, the literature review will be the main result of it, which in turn will be submitted for a comprehensive review by the supervisor.

Regarding phase 3; research design is the blueprint for fulfilling research objectives and answering research questions. In other words, it is a master plan specifying the methods and procedures for collecting and analyzing the needed information (Adams et al., 2007).

This lead us to know that the information that will be analyzed after an accurate collection, should be chosen in the right way and from the right sample, otherwise, the outcome that will be obtained at the end of the study will not be as accurate as it should, and thus will not reflect the results searched for. Accordingly, the clearer the knowledge, methods, and tools to-be-used are, the better the results are, and this applies to the techniques of the design, sampling methodologies, and all the other methods and tools.

Choosing a certain sample for monitoring, testing, and other purposes for this research will help speed up the study work since it has a time constraint. In addition, it helps make the work more relevant and flexible than working on a large number of companies and helps focusing on a smaller study group.

The sample might include several companies using certain frameworks and study their behavior, or include certain frameworks being used in several companies and study their efficiency.

Moving to phase 4, which is the section where the data will be collected and sorted according to what was mentioned before, the two types of data will be used, primary data collection and secondary data collection.

In this important phase of the research, there should be always an eye of the quality and type of the data being collected sine it will determine - directly or indirectly - the effectiveness and reliability of the results.

Collecting data will be constrained by the pre-drawn and approved timeline, which means that careful consideration is highly required in this phase.

Although secondary data might seem easier to use and tends to be more comprehensive, however, both types - primary and secondary- will be used in this research.

For each type of these two methods, there are many tools to choose from such as observation, experimentation, surveys, interviews, diary methods, case studies, and triangulation. The decision on what to use will occur at that phase according to what will be needed and what seems to be more effective, efficient, and affordable taking into consideration the circumstances at that

particular time. And this applies as well for the secondary data collection methods.
As for the phases 5, 6, and 7 there will be, as mentioned before, some kind of cyclic iterations due to the type of the research. It has been noted that this research will benefit from previous findings that will undergo fundamental modifications and add a unique touch that will be tested and validated. All this will happen in a cyclic sequential frame.
In this cycle, the work will pose a challenge in terms of getting rid of unused overwhelming data gathered from in-depth interviews, observations and other forms.
Several tasks will take place whether sequentially or overlapping during this phase. Among these tasks:

- Preparation

The collected data has to be prepared in a clear and scientific way. All the channels that were utilized to collect the data and the repositories that were used to store the data will be evacuated step by step as we complete the preparation task.

- Familiarization with data

This task includes diving in the data in order to acquire additional in-depth understanding of the material.

- Charting

It would help understanding to try to chart some data in order to interrelate and correlate data in one picture where needed.

- Mapping and Interpretation

The final stage in this process of analyzing qualitative data is about interpreting the data and making assertions. The analyst reviews the charts and research notes, compares and contrasts perceptions, accounts or experiences, and searches for patterns and connections that will help explain the phenomenon under study.
"InnoFrame", the proposed framework at this level of work should be in the phase of "fabrication". Whenever a new line, aspect, or feature is designed, it is essential to validate their usage, effectiveness, and relevance. The supervisor of this research is involved closely in every step of this phase. Moreover, consultations with professionals, managers, and scientists are of a big importance here as well.
The scope of this framework will be clarified as work moves on since the study is constrained with several restrictions such as time, effort, and cost.
Regarding the validation step, it is important to draw the attention that this task should be exposed to further researches in the future since validating such frameworks might need several years to ensure its feasibility and practicality, however, what is meant by validation here is a primary validation that ensures the framework is at its best design, and all its channels are functioning normally, and it is ready to be used by companies. The long-term validation should undergo future studies and researches.

Phase 8 is titled generalizing. In this phase, the most important line is that a conclusion will be drawn here about a wide class of companies, which is the class of "SMEs" or a conclusion that address a certain phenomenon, which is outside the narrow sample of this research study. This importance is reflected in the fact that this conclusion is the real push, or the real contribution that is made at the end of the day to knowledge.

Most businesses will seek an "off the peg" solution to a business problem because it is often cheaper than undertaking their own research, but such solutions only exist if the research, which produced them, was capable of generalizing its findings (Adams et al., 2007).

Phase 9 is where the final research is assembled and finalized. The complete design of the framework plus all the analysis and interpretations are organized in a final report called the doctoral thesis. During this final stage, some important tasks will be occurring such as meeting the supervisor, intensive reviewing for certain parts and refining the transition parts that connect the phases each to other.

CONCLUSIONS AND FURTHER RESEARCH

As a conclusion, it was noticed according to the above literature review that there is a large and wide emphasis on the important role that small and medium-sized enterprises hold in its industries, on one side, and for the whole market and economy on the other side. This importance is better seen and better translated into actions when these enterprises are being able to select their best innovative portfolios that are compatible with their businesses in order to ensure that they can last the longest they can in the market. Those innovative portfolios are to be chosen using the best models and criteria.
And here comes a highlight on the upcoming actions of this research where the future steps of this research will concentrate on a wider literature review to cover all the used models and frameworks in order to understand the holes and gaps existing and accordingly build on it to reach a place where new integrated framework exists ensuring better tools, features, and methods to be used by small and medium-sized companies in a certain chosen industry and allowing them to select, manage, and measure their innovation projects' portfolios using quantitative and qualitative approaches.

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